

Manual

Software Program Loader V4.1

(PC software for Microsoft® Windows® XP, VISTA, 7)

This manual describes the installation of the Program Loader PC software and as a support for starting up the Program Loader software explains the individual functional elements of the graphic Windows® user interface.

The software allows the user to perform an automatic firmware update. The update will be carried out through the RS232 interface.

An initialisation file (xxx.ini) and a firmware file (xxx.elf.S) are required for performing a firmware update. These files can be obtained from your supplier. In some cases an additional firmware file for the program memory (xxx.elf.p.S) is also needed, and this file will be automatically provided together with the other two files.

Important! For a firmware update the two or three files must always be located in the same folder.

A plausibility check is performed after the initialisation file has been loaded with the Program Loader. If the initialisation file was changed or damaged, it will not be possible to perform a firmware update.

When the plausibility check is successfully completed, the instructions contained in the initialisation file will be carried out step by step.

The complete memory contents of the micro-controller in the sensor will be deleted in a firmware update. This means that both the program in the program memory and the data in the data memory will be lost.

The new firmware automatically writes the correct data to the program memory again.

However, the parameter settings, temperature curves, linearization curves, etc. that are stored in the data memory (EEPROM) will be deleted.

With the Program Loader V4.1 software the data will be saved in the EEPROM, and can be written back again after successful firmware update.

For this purpose the software creates an EEPROM backup file.



Installation of the Program Loader software

Hardware requirements for successful installation of the Program Loader software:

- IBM PC AT or compatible
- VGA graphics
- Microsoft® Windows® XP, VISTA, 7
- Serial RS232 interface at the PC
- Microsoft® compatible mouse
- Cable for the RS232 interface (cab-las4/PC, cab-las4/USB or cab-las5/PC, cab-las5/USB)
- CD-ROM drive
- Approx. 5 MB of free hard disk space

The Program Loader software can only be installed under Windows. Windows must therefore be started first, if it is not yet running.

Please install the software as described below:

1.	The software can be installed directly from the installation CD-ROM. To install the soft	
	start the SETUP program in the INSTALL folder of the CD-ROM.	Ì
2.	The installation program displays a dialog and suggests to install the software in the C:\"FILENAME" directory on the hard disk. You may accept this suggestion with OK or [ENTER], or you may change the path as desired. Installation is then performed automatically.	
3.	During the installation process a new program group for the software is created in the Windows Program Manager. In the program group an icon for starting the software is created automatically. When installation is successfully completed the installation program displays "Setup OK".	
4.	After successful installation the software can be started with a left mouse button double-click on the icon.	

Windows® is a trademark of the Microsoft Corp. VGATM is a trademark of the International Business Machines Corp.



Please read this chapter before you start! In this example a software update is performed from SPECTRO3 V3.x to SPECTRO3 V3.3.

Step 1:

When the Program Loader software is started, this window opens on the Windows user interface.

Immediately after starting, the software attempts to establish a connection to the connected sensor. If the sensor should not be connected at **COM PORT 1**, please select the corresponding **COM PORT**.

Please make sure that the correct BAUDRATE is selected.

Now try to establish a connection by clicking on **TRY TO CONNECT**. When the correct **COM PORT** has been selected, the sensor sends back information about the current firmware.

😹 PROGRAM LOADER V4.1	- 🗆 🗙				
ESTABLIS	H CONNECTION				
SELECT COMPORT [1256]	AUDRATE 19200 TRY TO CONNECT				
FIRMWARE UPDATE					
READ FIRMWARE FROM DISK	CLEAR WINDOW				
ARM PROGRAM LOADER	DISARM PROGRAM LOADER				
It is STRONGLY recommended to UPDATE th SPECTRO3 V3.2 RT:KW09/10	te FIRMWARE according to the MANUAL! ▲				
CREATE E					
READ EEPROM DATA FROM SENSOR	SAVE EEPROM DATA TO SENSOR				
EEPROM TRANSFER d:\Mist\EEPROM_Backup.dat					

Step 2:

Press the **READ FIRMWARE FROM DISK** button and load the **xxx.ini** file.

The uploaded initialization file will be displayed in the status window.

As described above, a plausibility check of the initialisation file will be performed first.

If the file is OK, the following message will be displayed:

File read OK!

Press **ARM PROGRAM LOADER** to start the firmware update.

Please read the comments that are shown in the display window. These comments allow you to make sure that you have loaded the correct initialisation file.

PROGRAM LOADER V4.1				
ESTABLISH CONNECTION				
SELECT COMPORT [1256]	AUDRATE 19200 TRY TO CONNECT			
FIRMWARE UPDATE				
READ FIRMWARE FROM DISK	CLEAR WINDOW			
ARM PROGRAM LOADER	DISARM PROGRAM LOADER			
t is STRONGLY recommended to UPDATE the FIRMWARE according to the MANUAL!				
FILE LOADED: d:\Work_Released_S_Record_Files\Work_Released_Firmware_Initial_Files\Spectro3\Firmwa re_Files_Spectro3V3x_To_Spectro3V33\Firmware_Update_IniFile_Spectro3V3x_To_Spectro 3V33.ini				
Initial file for firmware update from old version: Spectro3 V3x to new version: Spectro3 V3.3				
FILE READ OK! PRESS ARM FIRMWARE LOADER TO START FIRMWARE UPDATE.				
CREATE EEPROM BACKUP				
READ EEPROM DATA FROM SENSOR	SAVE EEPROM DATA TO SENSOR			
EEPROM TRANSFER d:\Mist\EEPROM_Backup.dat				

Sensor Let's make sensors more individual

Instruments

Step 3:

Now click on the **ARM PROGRAM LOADER** button. The program now attempts to send a software command that interrupts the normal program run and jumps to the start address of the boot sector.

If this is successful, the sensor displays a prompt for loading the S-Record file to the sensor.

When you press the **ARM PROGRAM LOADER** button the firmware update will be performed automatically.

In the course of the update process you will only be prompted to enter a name for the EEPROM backup file. If the firmware update should run perfectly until the EEPRM data are read out, but should then go wrong for any reason whatsoever, the EEPROM backup file can always be written back with **SAVE EEPROM DATA TO SENSOR**.

The file name for your **EEPROM backup file** should be chosen such that the names for several sensors cannot be mixed up. Using a file name that contains the sensor serial number might be advisable. Saving this file for future updates also might be a good idea.

After a successful update the sensor displays the status line of the new firmware.

The complete update process may take up to 2 minutes.

😤 Select EEPROM Backup File 🗙 🗙					
Directory <u>H</u> istory:	BackupFiles		•		
Suchen in:	BackupFiles	- 🗢 🗈 🕂 🖩-			
6	Name 🔺	▼ Änderungsdat ▼ Typ	-		
Z data kasu akt	Es wurden ke	ine Suchergebnisse gefunden.			
Desktop	Desktop				
Bibliotheken					
Computer					
Netzwerk					
	Dateiname: JEEPROM_Backu		-		
	Dateityp: (".dat)	Abbrecher	<u>ו</u> בי		
			- I v		
	LOADER V4.1				
	ESTABLISH (CONNECTION			
SELECT COMP	PORT [1256]	DRATE 19200 TRY TO CONNEC	т		
	FIRMWAR	FIRMWARE UPDATE			
READ F	IRMWARE FROM DISK	CLEAR WINDOW			
READ F	PROGRAM LOADER	CLEAR WINDOW			
READ F	IRMWARE FROM DISK	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F	IRMWARE FROM DISK	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F	IRMWARE FROM DISK	CLEAR WINDOW DISARM PROGRAM LOADER	-		
ARM ARM Success! Backup File hi	IRMWARE FROM DISK PROGRAM LOADER as been created!	CLEAR WINDOW DISARM PROGRAM LOADER	-		
ARM ARM Success! Backup File hi Download of r	IRMWARE FROM DISK PROGRAM LOADER as been created! wew firmware.	CLEAR WINDOW DISARM PROGRAM LOADER	1		
READ F ARM Success! Backup File hi Download of r (c) 2003 Free	IRMWARE FROM DISK PROGRAM LOADER as been created! new firmware. scale. S-Record loader for the MCS	CLEAR WINDOW DISARM PROGRAM LOADER	-		
READ F ARM SuccessI Backup File hi Download of r (c) 2003 Free Waiting for a	IRMWARE FROM DISK PROGRAM LOADER as been created! wew firmware. scale. S-Record loader for the MCS plication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h Download of r (c) 2003 Free Waiting for ap Loaded fXOU Application st	IRMWARE FROM DISK PROGRAM LOADER as been created! new firmware. scale. S-Record loader for the MCS uplication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h Download of r (c) 2003 Free Walting for ap Loaded 0x00 Application st Firmeware Up	IRMWARE FROM DISK PROGRAM LOADER as been created! wew firmware. scale. S-Record loader for the MCS uplication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h Download of r (c) 2003 Free Walting for ap Loaded 0x00 Application st Firmeware Up	IRMWARE FROM DISK PROGRAM LOADER as been created! uew firmware. scale. S-Record loader for the MCS uplication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h Download of r (c) 2003 Free Walting for ap Loaded 0x00 Application st Firmeware Up EEPROM date	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! www.imware. scale. S-Record loader for the MC8 wplication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File hi Download of r (c) 2003 Free Waiting for ap Loaded 0x00 Application st Firmeware Up EEPROM date Success!	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! sew firmware. scale. S-Record loader for the MC8 splication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File hi Download of r (c) 2003 Free Waiting for ap Loaded 0x00 Application st Firmeware Upi EEPROM data Success! Backup File hi	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! scale. S-Record loader for the MC8 scale. S-Record loader for the MC8 splication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h: Download of r (c) 2003 Free Waiting for ap Loaded 0x00 Application st Firmeware Upi EEPROM data Success! Backup File h: SPECTRO3 V	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! scale. S-Record loader for the MC8 scale. S-Record loader for the MC8 splication S-Record	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h: Download of r (c) 2003 Free Waiting for ap Loaded 0x00 Application st Firmeware Up EEPROM date Success! Backup File h: SPECTRO3 V	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! wew firmware. scale. S-Record loader for the MCS scale. S-Record loader for the MCS polication S-Record. 4E1E bytes. atted from address (0x00A4 date successful! as will be send to sensor. as been saved to EEPROM! 3.3 RT:KW49/12	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h: Download of r (c) 2003 Free Waiting for ap Loaded 0x00 Application st Firmeware Up EEPROM data Success! Backup File h: SPECTRO3 V	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! scale. S-Record loader for the MCS scale successful! as will be send to sensor. as been saved to EEPROM! 3.3 RT:KW49/12 CREATE EEP	CLEAR WINDOW DISARM PROGRAM LOADER			
READ F ARM Success! Backup File h: Download of r (c) 2003 Free Waiting for ap Loaded 0x00 Application st Firmeware Up EEPROM data Success! Backup File h: SPECTR03 V	IRMWARE FROM DISK PROGRAM LOADER PROGRAM LOADER as been created! scale. S-Record loader for the MCS scale S-Record S-Record scale S-Record loader for the MCS scale S-Record S-Record S-Record scale S-Record S	CLEAR WINDOW DISARM PROGRAM LOADER 6F83oc. ver. 1.0.1 ROM BACKUP SAVE EEPROM DATA TO SENSOR			

Sensor Let's make sensors more individual

If, contrary to expectations, there should be any trouble with the update of the program memory, it will still be possible to perform an update, even though it may look like the sensor was "killed".

Please make sure that you have selected the correct **COM PORT** and the correct **BAUDRATE**.

You will not get any connection when you click on **TRY TO CONNECT**.

Load the corresponding **xxx.ini** file from the hard disk.

Then click on the **ARM PROGRAM LOADER** button.

The program will try to send the software command for the update. This will not work, however, and you will get a **CONNECTION FAILURE** message.

However, the Program Loader software now is "armed" for 30 seconds.

If you perform a hardware reset within these 30 seconds, the firmware update will be performed.

After a successful update the sensor displays the status line of the new firmware.

The complete update process may take up to 2 minutes.

INFO:

In case that the sensor was "killed", the sensor will work with a BAUDRATE of 19200.

PROGRAM LOADER V4.1			
ESTABLISH CONNECTION			
SELECT COMPORT [1256]			
FIRMWARE UPDATE			
READ FIRMWARE FROM DISK CLEAR WINDOW			
ARM PROGRAM LOADER DISARM PROGRAM LOADER			
It is STRONGLY recommended to UPDATE the FIRMWARE according to the MANUAL!			
It is STRONGLY recommended to UPDATE the FIRMWARE according to the MANUAL! FILE LOADED: d:\Work_Released_S_Record_Files\Work_Released_Firmware_Initial_Files\Spectro3\Firmware_Files_Spectro3\V33.To_Spectro3\V33\Firmware_IniFile_Spectro3\V33.Ini Initial file for firmware Spectro3 V3.3 FILE READ OKI PRESS ARM FIRMWARE LOADER TO START FIRMWARE UPDATE. Download of new firmware. CONNECTION FAILURE Waiting for HARDWARE RESET!			
CREATE EEPROM BACKUP			
READ EEPROM DATA FROM SENSOR SAVE EEPROM DATA TO SENSOR			
EEPROM TRANSFER d:\BackupFiles\EEPROM_Backup.dat			

Sensor Let's make sensors more individual

You may at any time create an EEPROM backup file for archiving it on your hard disk.

To do this, click on **READ EEPROM DATA FROM SENSOR.** You will be prompted to enter a file name. The selected name will be shown in the **EEPROM TRANSFER FILE** display.

The file name for your **EEPROM backup file** should be chosen such that the names for several sensors cannot be mixed up. Using a file name that contains the sensor serial number might be advisable.

The Program Loader then reads all the EEPROM data from the data memory and saves these data in the selected file.

Upon successful completion the following message will be displayed:

Success!

Backup File has been created!

If something should go wrong in a firmware update, any you have created the **backup file**, the saved **EEPROM backup file** can at any time be uploaded to the sensor again with **SAVE EEPROM DATA TO SENSOR.**

💥 PROGRAM LOADER V4.1				
ESTABLISH CONNECTION				
SELECT COMPORT [1256]				
FIRMWARE UPDATE				
READ FIRMWARE FROM DISK	CLEAR WINDOW			
ARM PROGRAM LOADER	DISARM PROGRAM LOADER			
It is STRONGLY recommended to UPDATE the F	IRMWARE according to the MANUAL!			
Initial file for firmware update from old version: Spectro3 V3.x to new version: Spectro3 V3.3				
FILE READ OK! PRESS ARM FIRMWARE LOADER TO START FIRMWARE UPDATE.				
EEPROM data will be read from sensor.				
Success! Backup File has been created!				
CREATE EEPROM BACKUP				
READ EEPROM DATA FROM SENSOR SAVE EEPROM DATA TO SENSOR				
EEPROM TRANSFER d:\BackupFiles\EEPROM_Backup_SerNo00000.dat				

CLEAR WINDOW resets the display window.

If you should not get any response for a longer time, or if messages should be displayed in the status line, **DISARM PROGRAM LOADER** can be used to cancel the firmware update process.

However, you should always wait for approx. 1 minute before you press this button.

署 PROGRAM LOADER V4.1					
ESTABLISH CONNECTION					
SELECT COMPORT [1256]	RATE 19200 TRY TO CONNECT				
FIRMWARE UPDATE					
READ FIRMWARE FROM DISK	CLEAR WINDOW				
ARM PROGRAM LOADER	DISARM PROGRAM LOADER				
ARM PROGRAM LOADER DISARM PROGRAM LOADER It is STRONGLY recommended to UPDATE the FIRMWARE according to the MANUAL! SPECTRO3 V3.3 RT:KW49/12 STRONGLY recommended to UPDATE the FIRMWARE according to the MANUAL! SPECTRO3 V3.3 RT:KW49/12 SPECTRO3 V3.3 RT:KW49/12 					
CREATE EEPF	IVM BACKUP				
READ EEPROM DATA FROM SENSOR SAVE EEPROM DATA TO SENSOR					
EEPROM TRANSFER d:\BackupFiles\EEPROM_Backup_SerNo00000.dat					